

WASHINGTON DEPARTMENT OF ECOLOGY
ENVIRONMENTAL ASSESSMENT PROGRAM
FRESHWATER MONITORING UNIT
STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 35G060
STATION NAME: Joseph Creek near Mouth
WATER YEAR: 2009
AUTHOR: Mitch Wallace

Introduction

Watershed Description

Joseph Creek is the largest tributary of the Grande Ronde River originating in the northeastern corner of Oregon, on the south flank of the Blue Mountains and the North Wallowa Mountains; flowing north into Washington State. Less than 20% of the Joseph Creek drainage lies within Washington. Joseph Creek contains a spring run of Chinook salmon, bull trout, and a very strong run of wild summer steelhead. Land use in this watershed is primarily ranching and grazing.

Gage Location

This station is located on Washington Department of Fish and Wildlife property approximately 2.5 miles upstream from the mouth on the access road leading to the Chief Joseph Wildlife area at Green Gulch.

Table 1.

Drainage Area (square miles)	545
Latitude (degrees, minutes, seconds)	46° 01' 46" N
Longitude (degrees, minutes, seconds)	117° 00' 57" W

Discharge

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	187
Median Annual Discharge (cfs)	52
Maximum Daily Mean Discharge (cfs)	1360
Minimum Daily Mean Discharge (cfs)	13
Maximum Instantaneous Discharge (cfs)	1490
Minimum Instantaneous Discharge (cfs)	11
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	641
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	17
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Narrative

Eight discharge measurements were conducted, ranging from 18 to 1110 cfs.

Error Analysis

Table 3. Error Analysis Summary.

Logger Drift Error (% of discharge)	1.4
Weighted Rating Error (% of discharge)	11.3
Total Potential Error (% of discharge)	12.7

Rating Table(s)

Table 4. Rating Table Summary

Rating Table No.	8	9	801	
Period of Ratings	4/13/08-10/18/08	10/19/08-2/24/09	2/25/09-12/9/10	
Range of Ratings (cfs)	9.2 to 2900	15 to 2900	9.2 to 2900	
No. of Defining Measurements	17	3	17	
Rating Error (%)	10.7	12.5	10.7	

Rating Table No.				
Period of Ratings				
Range of Ratings (cfs)				
No. of Defining Measurements				
Rating Error (%)				

Narrative

Rating shifted in early fall due to leaf litter buildup in channel. The rating then shifted back to the previous rating as a result of seasonal runoff in the spring. Rating 801 is a copy of rating 8.

Stage Record

Table 5. Stage Record Summary

Minimum Recorded Stage (feet)	3.92
Maximum Recorded Stage (feet)	8.32
Range of Recorded Stage (feet)	4.40
Number of Un-Reported Days	16
Number of Days Qualified as Estimates	6
Number of Days Qualified as Unreliable Estimates	0

Narrative

Unreported days were due to ice-impacted data. The dataset following an ice-impacted period is considered estimated data until a verifiable manual stage reading can be obtained.

Modeled Discharge

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	8.0 to 10.0
Range of Modeled Discharge (cfs)	1300 to 2900
Valid Period for Model	4/13/08 to 9/30/2009
Model Confidence	9.4%

Surveys

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
x-section, long. profile	08/30/11

Activities Completed

Laser Level pad and reference marks were installed.